

HUKILL CHEMICAL CORPORATION

7013 KRICK ROAD • BEDFORD, OHIO 44146-4493 • 216 / 232-9400

Over Forty Years of Quality Products and Services

26 August, 1996

US EPA RECORDS CENTER REGION 5



526397

Mr. Paul Rath
Custom Chemical Engineering
P.O. Box 3191
Springfield, IL 62708

Dear Mr. Rath:

This letter is to inform you, according to 40 CFR 264.12(b), that Hukill Chemical Corporation has the appropriate permits for, and will accept, your waste materials identified below. Additionally, Hukill Chemical Corporation has the capacity to accept your waste material to recycle for solvent recovery and/or for fuels processing. We assure proper disposal of the waste material according to U.S. EPA and state regulations.

<u>GENERATOR</u>	<u>WASTE STREAM</u>	<u>APPROVAL CODE</u>
Reglas Painting Co., Inc.	Earth Scrapings	#5095
	Dust Collector Filters	#5096
	Blasting Shot	#5097

Please refer to the approval code on all correspondence, shipping documents and when placing orders. We also request you stencil or label the approval code on the top of all drums when shipping.

A copy of this information must be kept with your permanent waste stream files. Should you have any questions, please do not hesitate to call.

Very truly yours,
HUKILL CHEMICAL CORPORATION

John C. Hukill
Sales Manager

JCH:tlp
enclosures

sales\accept\003646

COMPLIANCE WITH RCRA ORGANIC AIR EMISSION STANDARDS

General Description

The standards for process vents and equipment leaks were effective on 12/21/90. The Final Rule is found in the June 21, 1990 Federal Register. One of the requirements of the rule is that certain information be placed in the Hukill Chemical Corporation (HCC) facility operating records while they are on Interim Status. This has been done.

The HCC facility has two process vents as defined by this rule. The location of these process vents is shown on the plot plan found in the appendix of this section and labeled Figure D-12.

The fractional distillation operation, referred to as the Batch Distillation Unit, has one vent where the system can vent to the atmosphere through a vent tank equipped with a conservation vent. Refer to Figure D-13 for a diagram of this system's vent and sampling point, labeled "Batch Still Vent".

The second process vent is the combined vent for the two Luwa thin film evaporators. These units are operated under vacuum. Each Luwa unit is equipped with a vacuum pump which exhausts into a header system where the emissions from both units are combined. The knock-out drum for the combined Luwa vent is also equipped with a conservation vent. Figure D-13 provides a diagram of this vent system and the sampling point, labeled "Luwas' Vent".

The feed streams for the distillation units are usually 95 to 100 percent organics. Both of the process vents are subject to the regulation since the streams contain more than 10 ppmw organics. These organics are usually comprised of more than 20 percent "light liquids", defined as having a vapor pressure of more than 0.3 kPa (0.04 psig) at 68 deg. F and in the liquid state at operating temperature.

The total organic emissions from these process vents are below 3 pounds per hour and 3.1 tons per year.

The pumps, valves and lines used at HCC for hazardous waste transfer are all in light liquid service. The plot plan found in the appendix to this section and labeled Figure D-12 shows the location of the hazardous waste processing units. The identification of the pumps and valves are provided on the "Leak Detection Monitoring Data Sheet" included in the appendix to this section and labeled Exhibit D-16.

HCC does not use purged seal pumps as they have not been proven to be satisfactory for use with our hazardous waste. The use of double valve systems for HCC's hazardous wastes is not considered safe because some of the wastes contain water which may freeze

and, when trapped between two valves, may cause the valves to leak or the pipes to burst.

Open ended lines or valves are capped when not in use.

Inspection and Monitoring

The Inspection Check List, included in Appendix A of HCC's Part B Permit application, provides for the daily inspection of pumps, valves and lines used in the transfer of liquid hazardous waste. As discussed below, the pumps are monitored on a monthly basis, using Reference Method 21 found in 40 CFR Part 60, for organic emissions. Valves are monitored on a monthly, or quarterly basis, using Reference Method 21, if no leaks are detected for two successive months as allowed in 40 CFR Part 264.1057(c)(1).

HCC has installed a low cooling water flow alarm for the Batch Distillation Unit to mitigate the effects of a cooling water line rupture, cooling water pump failure or power outage. HCC has also installed an adjustable high temperature sensor for the Batch Still which is located in the vent line above the condenser. The set point is set for a temperature, below the vapor temperature of the solvent being taken overhead, when the Batch Still is charged. If the temperature in the vent line reaches the set point, an alarm sounds in the operating area and the Lab. Since the set point is below the vapor temperature of the solvent, there should be enough response time to take the proper actions, usually shutting off the steam to the reboiler, before there is any air emission.

The Luwa thin film evaporator units shut down when the power is interrupted. These units are under vacuum from electric operated vacuum pumps and are fed the hazardous waste by electric motor driven pumps. When the power is shut off, the conditions for creating a vent emission are eliminated since vapor must pass through the vacuum pump to get to the vent and the temperature of the unit is below the atmospheric boiling point of the solvent.

Personnel training in the safe handling of hazardous wastes and in the proper use of personal protective equipment is ongoing at HCC to prevent exposure to hazardous wastes. Please refer to Section H "Personnel Training" in the HCC Part B for details.

The above described equipment for mitigating the effects of equipment failure and power outage also prevent releases to the atmosphere.

Records including the Process Vent test data and Equipment Leak Detection Monitoring Data are maintained in the facility operating record for a minimum of three years.

Process Vents

Vent Emissions - Batch Distillation Unit

The Batch Distillation unit was tested on 12/13/90 by Envisage Environmental, Inc. The unit was into the Xylene cut with only a small amount of Isopropyl Alcohol in the product. No vapor flow was detected using first, the 250 cubic feet per hour capacity gas flow meter and, as a check, a more sensitive pitot tube flow instrument. Consequently, no samples of the vent emission could be obtained. The report from Envisage Environmental, Inc. is found in the appendix to this section and labeled Exhibit D-13.

EXHIBIT D-17, "STAFF QUALIFICATIONS AND CORPORATE REFERENCES" PROVIDES THE CONTRACTOR'S CREDENTIALS FOR ENVISAGE ENVIRONMENTAL, INC. EXHIBIT D-18 PROVIDES THE CALIBRATION DATA AND THE EQUIPMENT DESCRIPTION FOR THE GAS FLOW METER.

It was determined that another vent emission test should be run during warm weather and while the unit was processing organics containing methylene chloride, the solvent with the highest vapor pressure of those solvents processed in this unit. This test was conducted by Envisage Environmental, Inc. on 9/13/91. THE BATCH DISTILLATION SYSTEM WAS OPERATING AT FULL CAPACITY FOR THIS MATERIAL WHEN THE TEST WAS CONDUCTED. The results of this test are included in the appendix to this section and labeled Exhibit D-14. The results of this test indicated that no organic emission was detected during normal operations. The steam was increased by 25 percent after the test as a check on the system and to indicate the response time available to correct an upset condition. As shown in the report, the temperature and flow in the vent increased within forty-five minutes.

AS INDICATED IN THE TEST REPORT, EXHIBIT D-14, THE SYSTEM HAD BEEN RUNNING FOR THREE HOURS PRIOR TO THE TEST AND NO GAS FLOW WAS DETECTED BY THE METER DURING THE TEST. THE INCREASE IN STEAM PRESSURE RESULTING IN FLOW THROUGH THE METER SHOWED THAT IT WOULD DETECT GAS FLOW. THE GAS FLOW METER IS SENSITIVE TO A .005 CUBIC FEET GAS FLOW VOLUME. ALSO, THE FACT THAT THE T-8 THERMOCOUPLE, LOCATED ABOVE THE CONDENSER, RECORDED 70 DEGREES F DURING THE TEST AND 95 DEGREES F AFTER THE STEAM WAS INCREASED INDICATES THE DISTILLATION SYSTEM WAS OPERATING AT FULL CAPACITY AND VAPOR WAS CONDENSED DURING THE TEST PERIOD.

Note that for the above tests, one of the conservation vents was removed to install the vent flow and sampling equipment. The other two Vent Tank conservation vents, on the same manifold line, were closed during the test period. Vent emissions would be more likely to occur with the conservation vent removed than during normal operation where emissions would be reduced by the conservation vents.

The estimated annual distillation time for this unit is based on scheduled operation of 24 hours a day, six days a week for 50 weeks a year. Distillation time for this unit is 80 percent of scheduled time. This gives an estimated distillation time of 5,760 hours per year.

Vent Emissions - Luwa Distillation Units

The two Luwa thin film evaporator units, LN043 and LN050, are vacuum units. Envisage Environmental, Inc. obtained gas flow meter readings and vent gas samples, using Reference Method 18 found in 40 CFR Part 60, on three separate test runs while both units were in operation on 12/13/90. The test report is found in the appendix to this section and labeled Exhibit D-13.

THE LUWA UNITS WERE RUNNING AT FULL CAPACITY FOR THOSE HAZARDOUS WASTE STREAMS. THE OPERATING RATE VARIES DEPENDING ON THE COMPOSITION OF THE WASTE STREAM. THE WASTE STREAMS, CUSTOMER STREAM CODES A-19 AND S-57, ARE REPRESENTATIVE OF 80 TO 90 PERCENT OF THE FEED MATERIAL FOR THE LUWA UNITS AND DESCRIBED AS LACQUER THINNER. ACETONE IS THE MOST VOLATILE MATERIAL IN THIS FEED AND RANGED FROM 31 TO 32 PERCENT AND .5 TO 1.5 PERCENT IN THE RESPECTIVE LN-043 AND LN-050 FEED STREAMS. WASTE STREAMS CONTAINING METHYLENE CHLORIDE ARE ESTIMATED AT LESS THAN 5 PERCENT OF THE FEED TO THE LUWA UNITS.

THE DESCRIPTION AND CALIBRATION DATA FOR THE GAS FLOW METER USED IN TESTING THE LUWA UNITS IS INCLUDED AS EXHIBIT 18. IT IS THE SAME MODEL AND OF THE SAME PRECISION AS THE METER USED FOR THE BATCH DISTILLATION UNIT TESTS.

Note that for the above tests the conservation vent was removed to install the vent flow and sampling equipment. Vent emissions would be more likely to occur with the conservation vent removed than during normal operation where any emission would be reduced by the conservation vent.

The estimated annual distillation time for the Luwa units is based on scheduled operation of 24 hours a day, six days a week for 50 weeks a year. Distillation time for these units is 75 percent of scheduled time. This gives an estimated distillation time of 5,400 hours per year.

The emission from this process vent is based on the average organic emissions for three one-hour runs of 0.6741 pounds per hour calculated from the Envisage Environmental, Inc. test report data. The hourly emission from this process vent is 0.6741 pounds per hour. The calculated annual organic emission from this vent, based on the 5,400 hours per year distillation time, is 1.82 tons per year.

Based on the above information, the organic total organic air emissions from all affected process vents at the HCC facility are

below the 3 pounds per hour and 3.1 tons per year level and in compliance with 40 CFR Part 264.1032(a)(1). Therefore, HCC is not required to provide additional control devices to further reduce process vent emissions at this facility.

Equipment

HCC will use the "monthly leak detection and repair" method for complying with the Equipment Leak regulations. All the waste streams are in light liquid service and expected to have 10 percent or more organics. Reference Method 21 found in 40 CFR Part 60 is used to detect leaks.

The initial monitoring was done by Envisage Environmental, Inc. on 12/13/90. The HCC Process Engineer observed the equipment leak testing and identified the equipment and the hazardous waste streams. The Process Engineer completed the "Leak Detection Monitoring Data Sheet". Copies of the three data sheets used for this monitoring are found in the appendix to this section and labeled Exhibit D-16.

EXHIBIT D-17, "STAFF QUALIFICATIONS AND CORPORATE REFERENCES" PROVIDES THE CONTRACTOR'S CREDENTIALS FOR ENVISAGE ENVIRONMENTAL, INC. EXHIBIT D-19 PROVIDES THE EQUIPMENT DESCRIPTION FOR THE FOXBORO ORGANIC VAPOR ANALYZER MODEL 108 MONITORING EQUIPMENT, THE CALIBRATION GAS ANALYSIS CERTIFICATION AND A DESCRIPTION OF THE "QUALITY ASSURANCE/QUALITY CONTROL" METHOD FOR ASSURING ACCURACY OF THE METER.

Note that the range of the organic detection meter was 0 to 1,000 ppm. The scale on this meter did not go to 10,000 ppm, the concentration that constitutes a "leak." All the test results were within this range. Subsequent testing was done with a meter of the prescribed test range of 0 to 10,000 ppm.

A "Leak Detection Monitoring Data Sheet", found in the appendix to this section and labeled Exhibit D-16, was printed and is used for the monthly leak detection testing.

Exhibit D-15 is a copy of a completed monitoring data sheet. THE COLUMN LABELED "COMPONENT" CONTAINS THE EQUIPMENT IDENTIFICATION NUMBER. THIS IS THE SAME NUMBER AS FOUND IN TABLE D-3 UNDER THE COLUMN HEADING OF "EQUIPMENT I.D. NUMBER".

THE COLUMN HEADING "PROCESS STREAM" IS THE HCC INTERNAL IDENTIFICATION CODE FOR A CUSTOMER'S SPECIFIC WASTE STREAM. A WASTE STREAM IS DEFINED AS THE HAZARDOUS WASTE FROM A SPECIFIC PROCESS OR OPERATION AT THE CUSTOMER'S FACILITY. A CUSTOMER MAY HAVE MORE THAN ONE WASTE STREAM GENERATED AT A FACILITY. EACH STREAM WOULD BE GIVEN AN INDIVIDUAL WASTE STREAM IDENTIFICATION CODE. SAMPLE ANALYSES AND PROCESS DATA FOR EACH WASTE STREAM ARE FILED UNDER THIS CODE.

The identification and location of the equipment is indicated on the data sheet. The data sheet locations are identified on the plot plan, found in the appendix to this section and labeled Figure D-12. TABLE D-3 PROVIDES A LIST AND DESCRIPTION OF THE EQUIPMENT AT EACH LOCATION SHOWN ON THE PLOT PLAN, FIGURE D-12.

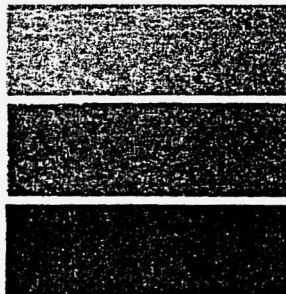
THE PROCEDURE FOR DETECTING LEAKS BASED ON CONCENTRATION, 40 CFR PART 60, APPENDIX A, METHOD 21, 4.3.1, IS USED SINCE ALL THE EQUIPMENT IS ACCESSIBLE WITH THE FOXBORO OVA 108 PROBE.

The "Leak Detection Monitoring Data Sheets" are kept in the facility operating records for a minimum of three years.

If a leak is detected and not repaired within the prescribed time, it will be reported to the Regional Administrator for that semiannual reporting period as required by 40 CFR Part 264.1065.

SOURCE EVALUATION RESULTS

PREPARED BY



**Envisage
Environmental
Incorporated**

P.O. Box 152 Richfield, Ohio 44286
Phone (216) 526-0990

Envsage Environmental Incorporated

P.O. Box 152 Richfield, Ohio 44286
Phone (216) 526-0990

January 7, 1991

Mr. Ed Price
Hukill Chemical Company
7013 Krick road
Bedford, Ohio 44146

Dear Mr. Price:

The following report is the result of the EPA Methods 18, Measurement of Organic Compounds, and Method 21, Determination of Volatile Organic Compound Leaks. Testing was conducted at the above location on December 13, 1990.

The results are true and accurate to the degree specified in the pertinent section of the Code of Federal Regulations in force at the time of testing concerning the above test methods.

I look forward to answering any questions you may have and assisting you in the future.

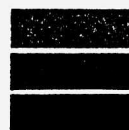
Respectfully submitted,


Frank J. Hezoucky
Environmental Project supervisor
ENVISAGE ENVIRONMENTAL INCORPORATED

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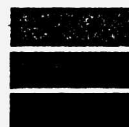
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Phone (216) 526-0990

DESCRIPTION OF PROGRAM



**Envsage
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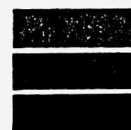
P.O. Box 152 Richfield, Ohio 44286
Phone (216) 528-0990

DESCRIPTION OF PROGRAM

On December 13, 1990 Envisage Environmental Inc. Conducted an EPA method 18 Measurement of Organic Compounds on the exhaust of the LUWA machine. Three test runs were conducted on this date each run lasting one hour. Testing consisted of drawing the exhaust gases from the LUWA through a charcoal tube with a personal sampling pump. The organic components caught on the charcoal were analyzed by gas chromatography (GC). Before and after each sample run flow rates were taken, enabling the emission rate of Volatile Organic Compounds to be calculated. This was done using EPA Method 2A, Direct Measurement of Gas Volume Through Pipes and Small Ducts.

The second phase of testing conducted on December 13, 1990 consisted of EPA Method 21 Determination of Volatile Organic Compounds leaks. This was done by using a Foxboro Portable Flame Ionization Analyzer calibrated to 100 ppm of methane. Testing was conducted on the various process equipment, valves, flanges and other connections throughout the plant.

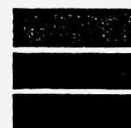
Emission testing was determined pointless on the Still Line exhaust due to the unmeasurable flow rate of the unit.



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Environmental
Incorporated**

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Phone (216) 528-0990

TEST RESULTS SUMMARY



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Phone (216) 526-0990

TEST RESULTS SUMMARY

Hukill Chemical Company

7013 Krick Road

Bedford, Ohio

LUWA Exhaust

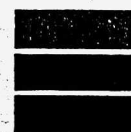
Volatile Organic Compound Emissions

Conducted - December 13, 1990

PARAMETER	RUN # 1	RUN # 2	RUN # 3
Total Volatile Organic Compounds Pounds/hour	0.6262	0.6808	0.7152
Ethanol Emissions Pounds/hour	0.0078	0.0169	0.0171
Methyl Ethyl Keytone Emissions Pounds/hour	0.0001	0.0126	0.0108
Ethyl Acetate Emissions Pounds/hour	0.0087	0.0126	0.0124
Toluene Emissions Pounds/hour	< 1.59E-06 *	4.79E-04	3.75E-04
N-Butyl Acetate Emissions Pounds/hour	< 3.52E-06 *	1.15E-05	8.93E-06
Xylene Emissions Pounds/hour	< 3.52E-06 *	1.15E-05	8.93E-06
Acetone Emissions Pounds/hour	0.2247	0.3504	0.3901
Methyl Isobutyl Keytone Emissions Pounds/hour	< 2.77E-06 *	1.06E-05	9.82E-06
rest as Hexane Emissions Pounds/hour	0.3849	0.2883	0.2847

< DENOTES BELOW DETECTIBLE LIMIT

* NOT included in total lb/hr Volatile Organic Compounds

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TEST RESULTS

Hukill Chemical

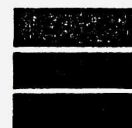
LUWA Exhaust

Volatile Organic Compound Emissions

DATE: December 13, 1990	Symbol	Units	RUN # 1	RUN # 2	RUN # 3
Time of Day			1038 1138	1146 1246	1250 1350
1 Pump Volume-dry, std.	Pvstd	cu. ft.	0.2440	0.2474	0.2464
2 Flue Gas Volume-Std.	SCFM	cu. ft.	1.5470	1.6592	1.6630
1 Ethanol					
- Concentration	Cs	gr/dscf	0.586	1.191	1.202
- Rate	E	lb/hr	0.0078	0.0169	0.0171
2 Methyl Ethyl Keytone					
- Concentration	Cs	gr/dscf	0.130	1.212	1.124
- Rate	E	lb/hr	0.0001	0.0126	0.0108
3 Ethyl Acetate					
- Concentration	Cs	gr/dscf	0.653	0.885	0.870
- Rate	E	lb/hr	0.0087	0.0126	0.0124
4 Toluene					
- Concentration	Cs	gr/dscf	< 0.00012	0.034	0.026
- Rate	E	lb/hr	< 1.59E-06	4.79E-04	3.75E-04
5 N-Butyl Acetate					
- Concentration	Cs	gr/dscf	< 0.00027	0.00081	0.00063
- Rate	E	lb/hr	< 3.52E-06	1.15E-05	8.93E-06
6 Xylene					
- Concentration	Cs	gr/dscf	< 0.00027	0.00081	0.00063
- Rate	E	lb/hr	< 3.52E-06	1.15E-05	8.93E-06
7 Acetone					
- Concentration	Cs	gr/dscf	16.948	24.636	27.364
- Rate	E	lb/hr	0.2247	0.3504	0.3901
8 Methyl Isobutyl Keytone					
- Concentration	Cs	gr/dscf	< 0.00021	0.00075	0.00069
- Rate	E	lb/hr	< 2.77E-06	1.06E-05	9.82E-06
9 rest as Hexane					
- Concentration	Cs	gr/dscf	29.02689	20.27016	19.97520
- Rate	E	lb/hr	0.3849	0.2883	0.2847

< DENOTES BELOW DETECTIBLE LIMIT

LABORATORY SECTION



**Envsage
Environmental
Incorporated**

P.O. Box 152 Richtfield, Ohio 44286
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TMA

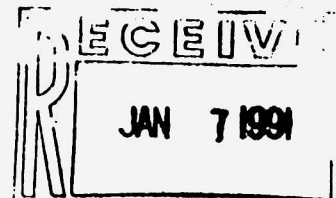
thermo Analytical Inc.

TMA/ERG

777 Exchange Street

Cleveland, OH 44125-3337

(216) 447-0790



TMA/ERG

Envisage Environmental
PO Box 152
Richfield, Ohio 44256

Date: January 2, 1991

Attn: Mr. Tom Holder

Date Collected: Unknown
Date Received: 12/17/90

TMA ID: 8865:01-08
CLIENT ID: 90-1789-2312

PARAMETER (Large Tubes)

	RUN #1		RUN #2		RUN #3		RUN #4	
	Front	Back	Front	Back	Front	Back	Front	Back
Ethanol	4.7	0.66	13	1.8	13	1.9	ND	ND
Methyl Ethyl Ketone	1.8	0.17	17	1.7	16	1.7	ND	ND
Ethyl Acetate	8.6	0.87	12	1.2	12	1.3	ND	ND
Toluene	<0.0019	<0.0019	0.54	<0.0019	0.42	<0.0019	ND	ND
N-Butyl Acetate	<0.0042	<0.0042	0.013	<0.0042	0.010	<0.0042	ND	ND
Xylene	<0.0019	<0.0019	0.0050	<0.0019	0.0040	<0.0019	ND	ND
Acetone	150	20	210	29	250	36	ND	ND
Methyl Isobutyl Ketone	<0.0033	<0.0033	0.012	<0.0033	0.011	<0.0033	ND	ND
Rest as Hexane	300	36	220	26	210	29	ND	ND

PARAMETER (Small Tubes)

	RUN #1		RUN #2		RUN #3		RUN #4	
	Front	Back	Front	Back	Front	Back	Front	Back
Ethanol	2.5	1.4	3.2	1.1	2.9	1.4	ND	ND
Methyl Ethyl Ketone	0.060	0.029	0.56	0.17	0.20	0.057	ND	ND
Ethyl Acetate	0.62	0.23	0.74	0.25	0.47	0.12	ND	ND
Toluene	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	ND	ND
N-Butyl Acetate	<0.0042	<0.0042	<0.0042	<0.0042	<0.0042	<0.0042	ND	ND
Xylene	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	ND	ND
Acetone	64	34	110	46	100	51	ND	ND
Methyl Isobutyl Ketone	<0.0033	<0.0033	<0.0033	<0.0033	<0.0033	<0.0033	ND	ND
Rest as Hexane	81	42	53	26	54	26	ND	ND

Results reported in milligrams
ND = non-detectable.

Approved by:

Sumant Zikmani, Laboratory Manager

LABORATORY SUMMARY SHEET

Hukill Chemical

LUWA Exhaust

Volatile Organic Compound Emissions

DATE: December 13, 1990

	Symbol	Units	RUN # 1	RUN # 2	RUN # 3
1 Sampling Time	t	minutes	60.0	60.0	60.0
2 Barometric Pressure	Pb	in. Hg	29.45	29.45	29.45
3 Sample Pump Volume	Pv	cu. ft.	0.2390	0.2390	0.2390
4 Pump Temperature		degrees F	49.0	42.0	44.0
	Tm	degrees R	509.0	502.0	504.0
5 Stack Temperature		degrees F	48.0	48.0	47.0
	Ts	degrees R	508.0	508.0	507.0
6 Sample Weight:	Mn				
- Ethanol		mg	9.26	19.10	19.20
- Methyl Ethyl Keytone		mg	2.06	19.43	17.96
- Ethyl Acetate		mg	10.32	14.19	13.89
- Toluene		mg	< 0.0019	0.54	0.42
- N-Butyl Acetate		mg	< 0.0042	0.013	0.010
- Xylene		mg	< 0.0019	0.0050	0.0040
- Acetone		mg	268.0	395.0	437.0
- Methyl Isobutyl Keytone		mg	< 0.0033	0.0120	0.0110
- rest as Hexane		mg	459.0	325.0	319.0

< DENOTES BELOW DETECTIBLE LIMIT

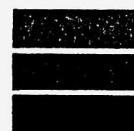


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Phone (216) 526-0990

EPA METHOD 21

SUMMARY



**Envsage
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Phone (216) 526-0990

EPA METHOD 21

COMPANY Hukill ChemicalCALIBRATED TO TYPE GAS 17. Methane

CONCENTRATION _____

DESCRIPTION OF SOURCE old lumpy ~~motor~~ bottoms pump,
Valves, drip panSOURCE CONCENTRATION peaking 450 ppm (background 40 ppm)
on shaft drive.Scale 0 - 1000 ppmRESPONSE ON OVA: Fluctuations due to drafts.NOTES OVA analyzed on shaft cover. Concentration cycled
between 100 and 250 ppm. Concentrations also cycled
between 300 and 400 ppm. Garage doors were shut to cut
down resistance from wind.Drip pan below shaft pegged the instrument over 1000 ppm.Valves - 60 - 80 ppm #110 & #117Behind pump against wall - 100 ppmDrain gate by pump - 120 - 140 ppm**Envisage
Environmental
Incorporated**P.O. Box 152 Richfield, Ohio 44286
Phone (216) 526-0990

EPA METHOD 21

COMPANY Hukill

CALIBRATED TO TYPE GAS _____

CONCENTRATION _____

DESCRIPTION OF SOURCE New Lura System, Bottoms pumped Fuel
Valves,

SOURCE CONCENTRATION _____

80ppm background - Doors Shut.0-100ppm scale

RESPONSE ON OVA _____

NOTES

Shaft \Rightarrow 80-100ppm, no drip pan in old system.Valves \Rightarrow 100ppmUnder pump Grating \Rightarrow 100ppm \rightarrow 80ppm**Envisage
Environmental
Incorporated**P.O. Box 152, Richfield, Ohio 44286
Phone (216) 526-0990

EPA METHOD 21

COMPANY Hukill

CALIBRATED TO TYPE GAS _____

CONCENTRATION _____

DESCRIPTION OF SOURCE ENST Hazardous Waste Dyke
- Hazardous Waste Tank Farm

SOURCE CONCENTRATION Open background 6 ppm

Scale 0-10 ppm

RESPONSE ON OVA _____

NOTES

V-114: Tank Valve 0 ppm V-611 = Tank Valve 5.4 ppm
 Pump Valve 0 ppm V-120 = Tank Valve 7.0 ppm

V-214: Tank Valve 7 ppm
 Pump Valve 7 ppm

Ford Valve in Dock - 18 (Same as background of area)

V-314: Tank Valve 5.4 ppm
 Pump Valve 5.2 ppm

V-414: Tank Valve 6.8 ppm
 Pump Valve 6.0 ppm

V-514: Tank Valve 6.0 ppm
 Pump Valve 6.0 ppm

V-4000 : 5.2 ppm

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 Incorporated**

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EPA METHOD 21

COMPANY HuVill

CALIBRATED TO TYPE GAS _____

CONCENTRATION _____

DESCRIPTION OF SOURCE Circulating Pump & Valves

SOURCE CONCENTRATION _____

Background 18 ppm0-100 ppm Scale

RESPONSE ON OVA _____

NOTES V-112 valve - 18 ppmV-117 : Valves 18-20 ppmPump 1 400 ppm - 600 ppm cycling around pumpCam-Lock Fitting - 18 ppmWest Feed - 18 ppmEAST Feed Tank - 18 ppmTRANSFER pump - 200 → 300 ppm (shaft w/ drip tank)**Envsage
Environmental
Incorporated**P.O. Box 152 Richfield, Ohio 44286
Phone (216) 526-0990

EPA METHOD 21

COMPANY Nukill

CALIBRATED TO TYPE GAS _____

CONCENTRATION _____

DESCRIPTION OF SOURCE Tank area → South High density Waste Dyke

SOURCE CONCENTRATION _____

0-100 scale Background 10ppm

RESPONSE ON OVA _____

NOTES V-600 ValvesV-110 ValvesV-210 ValvesV-175 Valvesall showed background levels of
10ppm**Envlsage
Environmental
Incorporated**PO Box 152 Richtfield, Ohio 44286
Phone (216) 526-0990

EPA METHOD 21

COMPANY Hubbell

CALIBRATED TO TYPE GAS _____

CONCENTRATION _____

DESCRIPTION OF SOURCE Distillation Le-baker

SOURCE CONCENTRATION _____

0-100 scale Background 18 ppm

RESPONSE ON OVA _____

NOTES

Sample Valve w/ end : 30 ppm - 30 ppmReturn Valve : 20-22 ppmLOAD Valve : ~~30-40~~ ppm 30-40 ppm 0-100 scaleDistill Lid : 150 ppm 0-1000 scale**Envisage
Environmental
Incorporated**P.O. Box 152 Richtfield, Ohio 44296
Phone (216) 526-0990

EPA METHOD 21

COMPANY Hukill

CALIBRATED TO TYPE GAS _____

CONCENTRATION _____

DESCRIPTION OF SOURCE _____

New LWA Feed pump. & Backwash tank
Old LWA Feed pump.

SOURCE CONCENTRATION _____

Background 40 ppm

RESPONSE ON OVA _____

NOTES _____

Shaft : 40-60 ppm
Valves : 40 ppmBackwash Tank/Vent : 100-200 ppm.
Valves 40 ppmOld LWA Feed pump = 20-40 ppm**Envlsage
Environmental
Incorporated**P.O. Box 152 Richfield, Ohio 44286
Phone (216) 526-0990

EPA METHOD 21

COMPANY Ankil

CALIBRATED TO TYPE GAS _____

CONCENTRATION Reclaim Feed LinesDESCRIPTION OF SOURCE _____

_____SOURCE CONCENTRATION _____

Background 40 ppm

RESPONSE ON OVA _____

NOTES

Reclaim Feed Lines (6)all showed 20ppm - 40ppm.

- V-6000
 - V-4000
 - EAST & West Feed
 - V110
 - V240
-
- _____
-
- _____
-
- _____
-
- _____

**Envisage
Environmental
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EPA METHOD 21

COMPANY Hukill

CALIBRATED TO TYPE GAS _____

CONCENTRATION _____

DESCRIPTION OF SOURCE V-110 Feed line and pump.
Drum Processing Area

SOURCE CONCENTRATION _____

Background 40 ppm0-1000 scale

RESPONSE ON OVA _____

NOTES Valves to pumpValves 1 60 ppmValves 2 60 ppmValves 3 45 ppmValve 4 40 ppmSample Valve 40 ppmValve 5 80 ppmShake Tank = greater than 100 ppm**Envlsage
Environmental
Incorporated**P.O. Box 152 Richfield, Ohio 44286
Phone (216) 526-0990

EPA METHOD 21

COMPANY Hukill

CALIBRATED TO TYPE GAS _____

CONCENTRATION _____

DESCRIPTION OF SOURCE Tanker 502, fcb

SOURCE CONCENTRATION _____

0-100 scaleBackgrounds 14ppm

RESPONSE ON OVA _____

NOTES

#502 Bottom Valves, Compartments 1-5-Readings were same as background#606 Compartments 1-3, Bottom ValvesBackground readings**Envisage
Environmental
Incorporated**P.O. Box 152 Richfield, Ohio 44286
Phone (216) 526-0990

EPA METHOD 21

COMPANY Hunkill

CALIBRATED TO TYPE GAS _____

CONCENTRATION _____

DESCRIPTION OF SOURCE lamp room

SOURCE CONCENTRATION _____

0-100 scale60 ppm background

RESPONSE ON OVA _____

NOTES 0-1000 scale

<u>Submerged Feed Line</u>	<u>> 1000 ppm</u>
<u>LUWA Feed</u>	<u>700 - 800 ppm</u>
<u>Flush Tank</u>	<u>500 - 600 ppm</u>
<u>Floor Grating</u>	<u>200 - 400 ppm</u>

**Envsage
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Incorporated**P.O. Box 152 Richfield, Ohio 44286
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EPA METHOD 21

COMPANY _____

CALIBRATED TO TYPE GAS _____

CONCENTRATION _____

DESCRIPTION OF SOURCE Laboratory

SOURCE CONCENTRATION _____

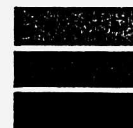
20 ppm background

RESPONSE ON OVA _____

NOTES _____

Acetone WASH buckets- checked Around lips : background \Rightarrow 71000ppmWaste barrel 71000ppm.**Envsage
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Incorporated**P.O. Box 152 Richfield, Ohio 44286
Phone (216) 526-0990

EMISSIONS SAMPLING NOMENCLATURE



**Envisage
Environmental
Incorporated**

P.O. Box 152 Richfield, Ohio 44286
Phone (216) 526-0990

Emissions Sampling Nomenclature - continued

- M_w = Molecular weight of water, 18 lb/lb-mole.
 P_{bar} = Barometric Pressure, in. Hg.
 P_g = Pressure differential from gas stream to atmosphere, (static pressure) in. H₂O.
 P_s = Absolute gas stream pressure, ($P_{bar} + P_g/13.6$) in. Hg.
 P_{std} = Absolute pressure at standard conditions, 29.92 in. Hg.
 P_w = Density of water, 0.0022 lb/ml.
 \sqrt{P}_{avg} = Average of the square roots of the velocity head readings, (\sqrt{P}) (in. H₂O).
 Q = Volumetric flow rate at gas stream conditions, A.C.F.M.
 Q_{sd} = Dry volumetric gas flow rate corrected to standard conditions, S.C.F.M.
 R = Ideal gas constant, 21.85 in. Hg-ft³/°R-lb-mole.
 t = Total sampling time, minutes.
 T_m = Average dry gas meter temperature, °R.
 T_s = Average absolute gas stream temperature, °R.
 T_{std} = Standard absolute temperature, 528° Rankine.
 V_{lc} = Volume of water collected in impingers & silica gel, ml.

Envisage Environmental Incorporated

P.O. Box 152 Richfield, Ohio 44286
Phone (216) 526-0990

September 18, 1991

Mr. Ed Price
Hukill Chemical Company
7013 Krick Road
Bedford, Ohio 44146-4493

Dear Mr. Price:

The following report is the result of the air flow evaluation conducted on September 13, 1991 at the above facility. Testing was performed at the Batch Still Vent Tank.

The results are true and accurate to the degree specified in the pertinent sections of the Code of Federal Regulations, in force at the time of testing concerning Direct Measurement of Gas Volumes Through Pipes and Small Ducts.

I am looking forward to answering any questions you may have and assisting you in the future.

Respectfully submitted,



Robert C. Hovan
Project Leader
ENVISAGE ENVIRONMENTAL INC.

Exhibit D-14

RECEIVED
SEP 18 1991

HUKILL CHEMICAL CORP.

DESCRIPTION OF PROGRAM

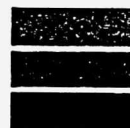
On September 13, 1991 Envisage Environmental Inc. conducted EPA Methods 2A, Direct Measurement of Gas Volume Through Pipes and Small Ducts evaluation at the Hukill Chemical facility located in Bedford, Ohio. The purpose of these tests was to determine the Volatile Organic emission rate of the Batch Still Vent Tank.

The Envisage testing team consisted of Messrs. Robert Hovan, and Mark Geirke. Mr. Ed Price, Hukill Chemical, coordinated the testing.

The testing was performed at one of the three conservation vents (figure 2) while the other two vents were capped shut. The initial run consisted of operating the Distillation Tower at normal parameters, steam flow 800 lbs/hr at 70 degrees fahrenheit. The temperature is recorded at thermocouple #8 (T-8) (figure 1) at the top of the distillation tower. The process was operating at these conditions for three hours prior to conducting run #1. The dry gas meter was set up and monitored for one hour. There was no recordable flow during this time period (9:45am - 10:45am).

The second run (11:00am - 11:45am) consisted of increasing the steam loading by 25% to find a process point where venting from the Batch Still Vent Tank would occur. The parameters for the second run were a steam flow of 1009 lbs/hr at a T - 8 temperature of 95 degrees fahrenheit. At these conditions, the Batch Still Tank exhibited a flow rate of 0.3 cubic feet/minute after approximately 45 minutes.

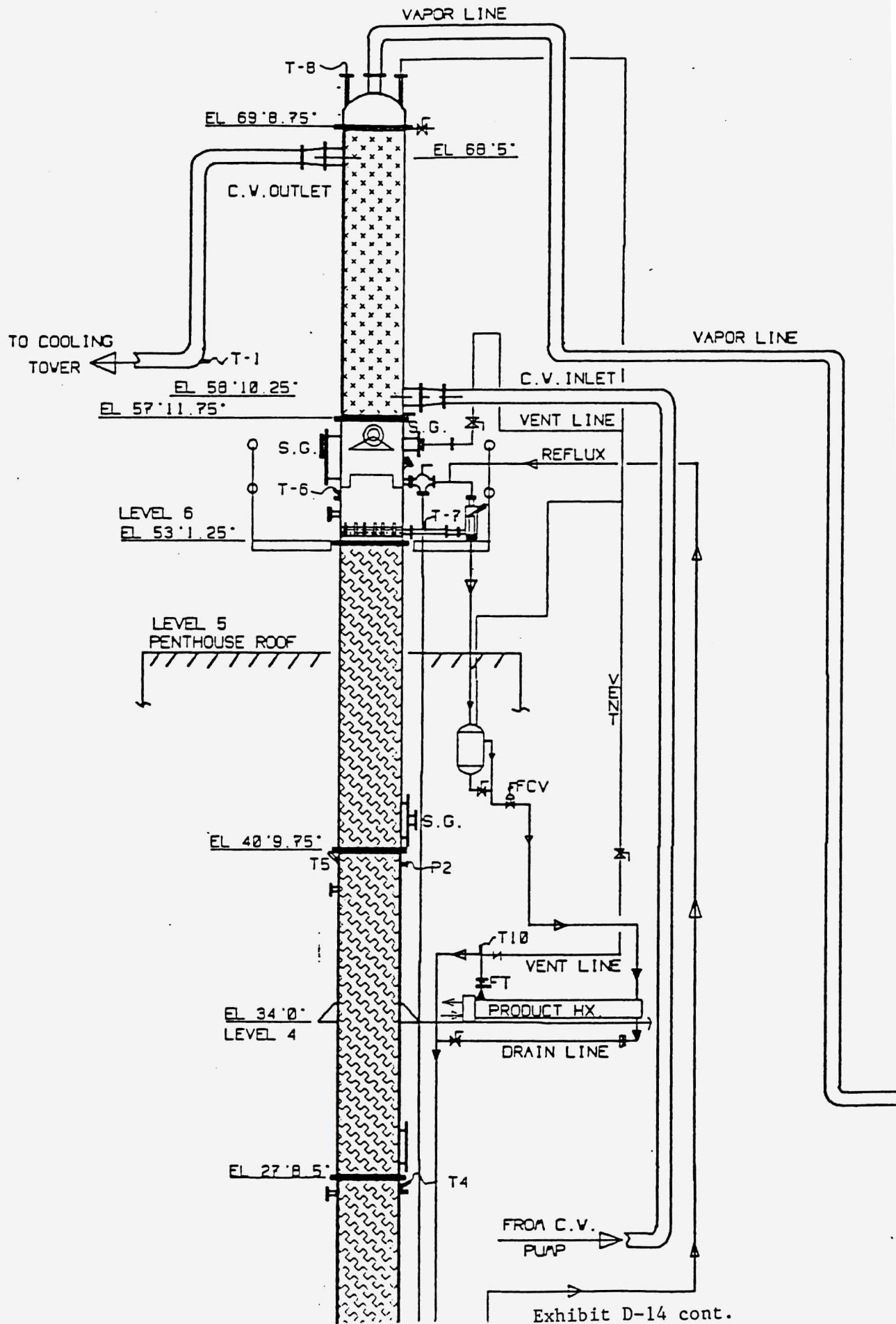
Exhibit D-14 cont.



**Envisage
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Phone (216) 526-0990

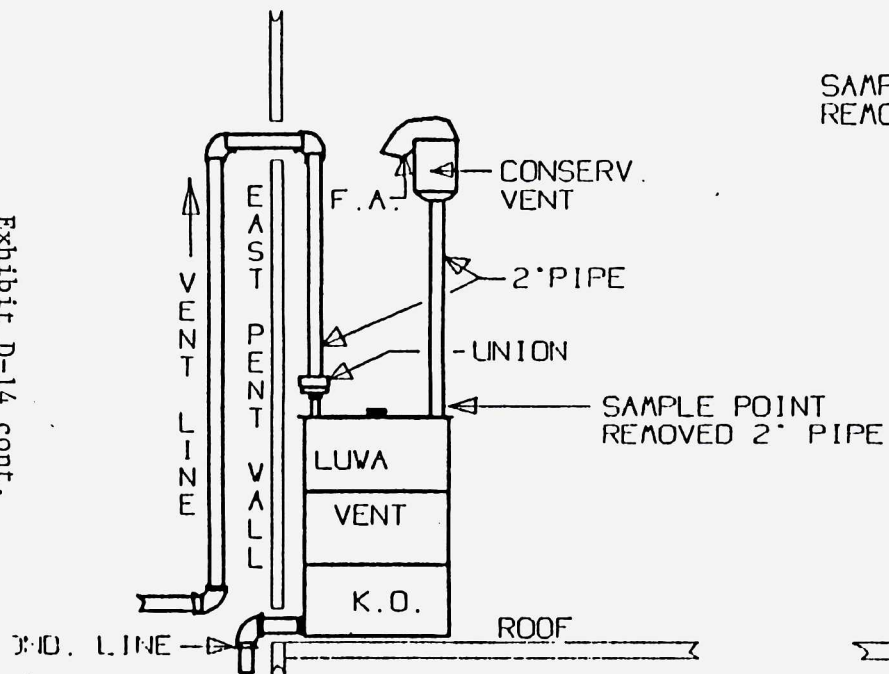
FIGURE 1



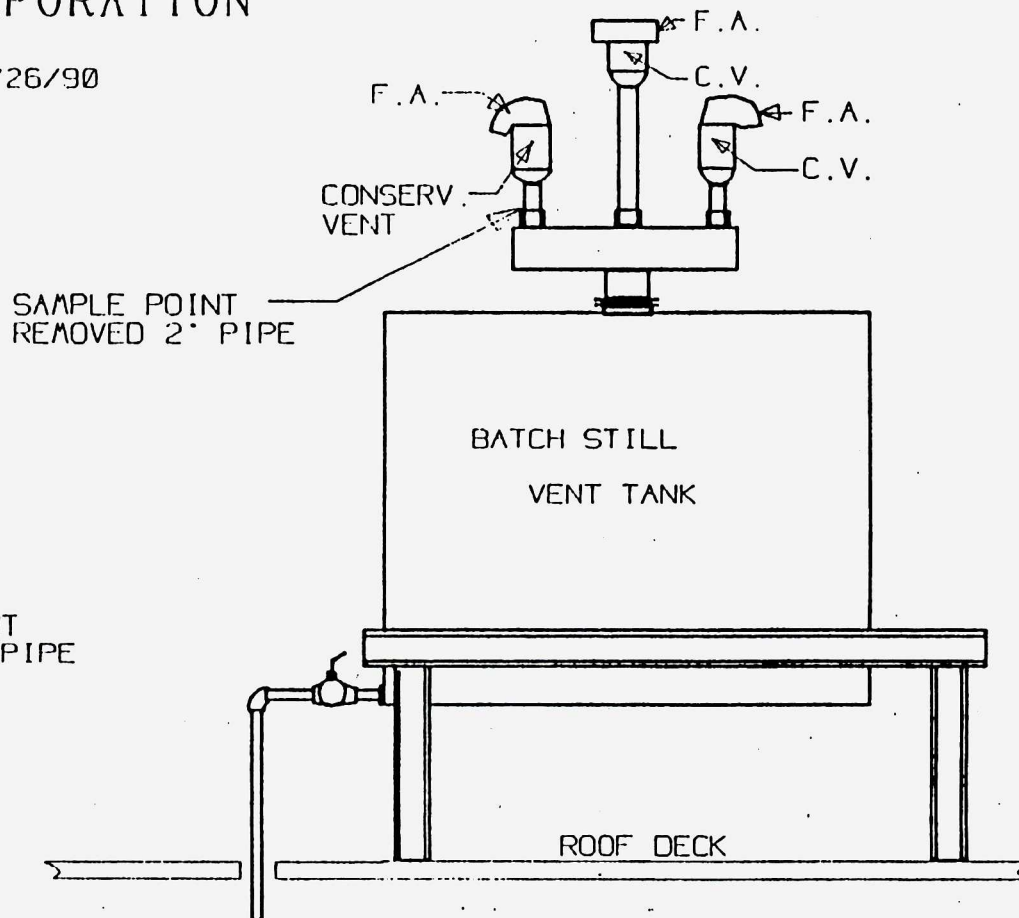
HUKILL CHEMICAL CORPORATION

VAIRPERM\PROCVENT Rev. 12/26/90

Exhibit D-14 cont.



LUWAS VENT



BATCH STILL VENT

FIGURE 2

TEST LOCATIONS FOR COMPLIANCE WITH ORGANIC AIR EMISSION REGS

MR

MATERIAL: MECH-

[illegible]

Instrument Used for Testing: <u>Fox 5000</u>			Calib. Gas <u>C14</u>		Outside Temp. <u>54.1 °F</u>	
Inst. Operated by: <u>Bob HOVAN</u>					<u>WIND. 5-10 MPH from South East</u>	
Equip. Identified by: <u>MARK MATTHEWS HCC.</u>						
COMPONENT	LOCATION	EQUIPMENT	PROCESS STREAM	TEST VALUE (ppm)	LEAK (Y/N)	COMMENTS
DISTILLATION AREA:						
Room	Distillation Area Background	NA	NA	30	NO	
PFLN430	Feed Pump	Old Luwa	H-9	30	NO	DRIP PAN
PBLN430	Bottoms Pump	Old Luwa	"	1.00	"	
UBLN430A	LN430 Btms. Disch. Line to U110M	Old Luwa	"	35-40	"	
UBLN430B	LN430 Btms. Disch. Line to U117	Old Luwa	"	35-40	"	
UBLN430C	LN430 Btms. Drain to Drum	Old Luwa	"	35-40	"	
PFLN500	Feed Pump	New Luwa	D-32 MIBK	20-30	NO	
JFLN500	Feed Pump Valve	New Luwa	"	20-30	"	
JBW	Backwash Line Valve	New Luwa	"	20-30	"	DRIP PAN
PBLN500	Bottoms Pump	New Luwa	"	40	"	
UBLN500A	LN500 Btms. Disch. Line to U110M	New Luwa	"	30	"	
UBLN500B	LN500 Btms. Disch. Line to U117	New Luwa	"	30	"	
UBLN500C	LN500 Btms. Drain to Drum	New Luwa	"	30	"	
JFU6000	Valve From U-6000 Tank	Pipe Rack	CF	30	NO	
JFU4000	Valve From U-4000 Tank	Pipe Rack	K-9	30	"	
JFEAST	Valve From EAST Feed Tank	Pipe Rack	CF	20	"	
JFWEST	Valve From WEST Feed Tank	Pipe Rack	CF	20	"	
JFU110M	Valve From U-110M Tank	Pipe Rack	CF	20	"	
JFU210M	Valve From U-210M Tank	Pipe Rack	CF	20	"	
Sump Area	Distillation Area Sump - Pump Area	NA	NA	250		
IAZ. WASTE FEED AND BOTTOMS STO. TANK DIKES:						
Dike Area	Feed/Btms. Tk. Dike Background	NA	NA			
WFEED	West Feed Tank Valve	W. Feed Tk.	CF	<5	NO	
EFEED	East Feed Tank Valve	E. Feed Tk.	CF	<5	"	
AIRPERM/LEAKCHK Rev. 1/11/91						

Components to be checked are pump seals, valves, open-ended pipes, relief valves, sample valves.

COMPONENT	LOCATION	EQUIPMENT	PROCESS STREAM	TEST VALUE (ppm)	VISIBLE LEAK (Y/N)	COMMENTS
HAZ. WASTE FEED AND BOTTOMS STO. TANK DIKES (Cont'd):						
TRANS	East Pad Transfer Pump	Port. Pump	CF	40	NO	
TRANS	East Pad Transfer Pump-Cam-lock	Trans. Pump	"	30	"	DRIP PAN
U117	Circ. Pump on U-117 Bottoms Tank	U-117 Tank	"	5	"	
DU117	Disch. Valve U-117 Tank	U-117 Tank	"	5	"	
DU117	Cam-lock on U-117 Disch. Line	U-117 Tank	"	5	"	
E. PAD HAZ. WASTE STORAGE TANK DIKE:						
Dike Area	HW Sto. Tk. Dike - Background	NA	NA	10		
DU114	HW Storage Tk. U-114	U-114 Tank	D-31/SR-3	5	NO	
DU214	HW Sto. Tk. U-214 Disch. Valve	U-214 Tank	H ₂ O	5	"	
DU314	HW Sto. Tk. U-314 Disch. Valve	U-314 Tank	H ₂ O	5	"	
DU414	HW Sto. Tk. U-414 Disch. Valve	U-414 Tank	H ₂ O	5	"	
DU514	HW Sto. Tk. U-514 Disch. Valve	U-514 Tank	SOLV.	5	"	
DU614	HW Sto. Tk. U-614 Disch. Valve	U-614 Tank	D-31/D3-3	5	"	
DU120	HW Sto. Tk. U-120 Disch. Valve	U-120 Tank	" "	5	"	
DU4000	HW Sto. Tk. U-4000 Disch. Valve	U-4000 Tank	K-9	5	"	
HAZ. WASTE FUELS BLEND TANK DIKE:						
Dike Area	HW Fuels Blend Dike - Background	NA	NA	<10	NO	
DU6000	Fuels Sto. Tk. U-6000 Disch. Valve	U-6000 Tank	MY	<10	"	
DU110M	Fuels Sto. Tk. U-110M Disch. Valve	U-110M Tank	CF	<10	"	
DU210M	Fuels Sto. Tk. U-210M Disch. Valve	U-210M Tank	CF	<10	"	
DU175	Fuels Sto. Tk. U-175 Disch. Valve	U-175 Tank	F-7/HMP	<10	"	
TRANS	HW Fuels Transfer Line Valve	Fuels Dike	CF	<10	"	
ATCH DIST. REBOILER AREA:						
Reboiler	Reboiler Area - Background	NA	NA	50		
SMPR	Sample Valve - Reboiler	Batch Still	D-31/MIX	50	NO	
RETR	Return Valve - Reboiler	Batch Still	"	50	"	
FILLR	Fill Valve - Reboiler	Batch Still	"	50	"	
HR	Man Hole Cover - Reboiler	Batch Still	"	50	"	
AIRPERM\LEAKCHK Rev. 1/11/91						

Components to be checked are pump seals, valves, open-ended pipes, relief valves, sample valves.

[illegible]

Components to be checked are pump seals, valves, open-ended pipes, relief valves, sample valves.

Exhibit D-15 cont.

Instrument Used for Testing:		Calib. Gas		Outside Temp.		
Inst. Operated by:						
Equip. Identified by:				TEST	VISIBLE	
		PROCESS		VALUE	LEAK	
COMPONENT	LOCATION	EQUIPMENT	STREAM	(ppm)	(Y/N)	COMMENTS
-----	-----	-----	-----	-----	-----	-----
DISTILLATION AREA:						
Room	Distillation Area Background	NA	NA			
PFLN430	Feed Pump	Old Luwa				
PBLN430	Bottoms Pump	Old Luwa				
UBLN430A	LN430 Btms. Disch. Line to U110M	Old Luwa				
UBLN430B	LN430 Btms. Disch. Line to U117	Old Luwa				
UBLN430C	LN430 Btms. Drain to Drum	Old Luwa				
PFLN500	Feed Pump	New Luwa				
UFLN500	Feed Pump Valve	New Luwa				
UBW	Backwash Line Valve	New Luwa				
PBLN500	Bottoms Pump	New Luwa				
UBLN500A	LN500 Btms. Disch. Line to U110M	New Luwa				
UBLN500B	LN500 Btms. Disch. Line to U117	New Luwa				
UBLN500C	LN500 Btms. Drain to Drum	New Luwa				
UFU6000	Valve From U-6000 Tank	Pipe Rack				
UFU4000	Valve From U-4000 Tank	Pipe Rack				
UFEAST	Valve From EAST Feed Tank	Pipe Rack				
UFWEST	Valve From WEST Feed Tank	Pipe Rack				
UFU110M	Valve From U-110M Tank	Pipe Rack				
UFU210M	Valve From U-210M Tank	Pipe Rack				
Sump Area	Distillation Area Sump - Pump Area	NA	NA			
HAZ. WASTE FEED AND BOTTOMS STO. TANK DIKES:						
Dike Area	Feed/Btms. Tk. Dike Background	NA	NA			
PWFEEED	West Feed Tank Valve	W. Feed Tk.				
PEFEEED	East Feed Tank Valve	E. Feed Tk.				
\AIRPERM\LEAKCHK Rev. 1\11\91						

Components to be checked are pump seals, valves, open-ended pipes, relief valves, sample valves.

COMPONENT	LOCATION	EQUIPMENT	PROCESS STREAM	TEST VALUE (ppm)	VISIBLE LEAK (Y/N)	COMMENTS
HAZ. WASTE FEED AND BOTTOMS STO. TANK DIKES (Cont'd):						
PTRANS	East Pad Transfer Pump	Port. Pump				
CTTRANS	East Pad Transfer Pump-Cam-lock	Trans. Pump				
PU117	Circ. Pump on U-117 Bottoms Tank	U-117 Tank				
UDU117	Disch. Valve U-117 Tank	U-117 Tank				
CDU117	Cam-lock on U-117 Disch. Line	U-117 Tank				
E. PAD HAZ. WASTE STORAGE TANK DIKE:						
Dike Area	HW Sto. Tk. Dike - Background	NA	NA			
UDU114	HW Storage Tk. U-114	U-114 Tank				
UDU214	HW Sto. Tk. U-214 Disch. Valve	U-214 Tank				
UDU314	HW Sto. Tk. U-314 Disch. Valve	U-314 Tank				
UDU414	HW Sto. Tk. U-414 Disch. Valve	U-414 Tank				
UDU514	HW Sto. Tk. U-514 Disch. Valve	U-514 Tank				
UDU614	HW Sto. Tk. U-614 Disch. Valve	U-614 Tank				
UDU120	HW Sto. Tk. U-120 Disch. Valve	U-120 Tank				
UDU4000	HW Sto. Tk. U-4000 Disch. Valve	U-4000 Tank				
HAZ. WASTE FUELS BLEND TANK DIKE:						
Dike Area	HW Fuels Blend Dike - Background	NA	NA			
UDU6000	Fuels Sto. Tk. U-6000 Disch. Valve	U-6000 Tank				
UDU110M	Fuels Sto. Tk. U-110M Disch. Valve	U-110M Tank				
UDU210M	Fuels Sto. Tk. U-210M Disch. Valve	U-210M Tank				
UDU175	Fuels Sto. Tk. U-175 Disch. Valve	U-175 Tank				
UTRANS	HW Fuels Transfer Line Valve	Fuels Dike				
BATCH DIST. REBOILER AREA:						
Reboiler	Reboiler Area - Background	NA	NA			
USMPR	Sample Valve - Reboiler	Batch Still				
URETR	Return Valve - Reboiler	Batch Still				
UFILLR	Fill Valve - Reboiler	Batch Still				
MHR	Man Hole Cover - Reboiler	Batch Still				
\\AIRPERM\\LEAKCHK	Rev. 1/11/91					

Components to be checked are pump seals, valves, open-ended pipes, relief valves, sample valves.

Exhibit D-16 cont.

STAFF QUALIFICATIONS AND CORPORATE REFERENCES

Exhibit D-17



**Envisage
Environmental
Incorporated**

P.O. Box 152 Richfield, Ohio 44286
Phone (216) 526-0990

**ENVISAGE ENVIRONMENTAL INCORPORATED
PHYSICAL PROPERTIES**

Location

Operational Offices:

6940 Miller Road, Brecksville, Ohio 44141

Offices: 3500 sq. ft.

Warehouse & Laboratory: 2500 sq. ft.

Mailing address: P.O. Box 152, Richfield, Ohio 44286

Five (5) incoming phone lines with additional dedicated

Fax line and 800 service.

On-Site/Field Capabilities:

Air Pollution Sources - Performance of Inlet/Outlet
concurrent sampling utilizing:

USEPA Reference Methods 1-28

USEPA Reference Methods 101-111

Hazardous Waste Incinerator Test Burns;

Field Work; Laboratory Analysis.

Asbestos Air Monitoring & Management

CEM (Continuous Emission Monitoring)

Instrumentation for the determination of:

Carbon Monoxide

Carbon Dioxide

Total Hydrocarbons

Nitrogen Dioxide

Nitrogen Oxides

Sulfur Dioxide

Oxygen

Volatile Organic

Constituents

Environmental Site Assessments

Storage Tank Management

Groundwater & Wastewater Sampling

Site Remediation

Major Laboratory Support Instrumentation:

Portable Gas Chromatograph (AID)

with Flame Ionization Detector

Office Facility:

Automated with IBM Compatible Personal Computer Systems

Portable Personal Computers (IBM compatible)

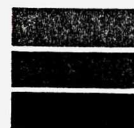
Portable Canon Bubble Jet Printers

Hewlett Packard Laser Printer Network

Time Sharing with CAD system

Electronic Data Processing & Word Processing

Modeling capabilities



**Envisage
Environmental
Incorporated**

P.O. Box 152 Richfield, Ohio 44286
Phone (216) 526-0990

ORGANIZATIONAL CHART

Board of Directors

Robert S. Anderson,
President

Legal	Office Acct.	Source Sampling	Industrial Hygiene	Tank Testing	Regulatory Compliance	Lab
-------	-----------------	--------------------	-----------------------	-----------------	--------------------------	-----

Legal

Gerald Skoch
Michael Cyphert
Dieter Domanovic
Charles Zellmer

Office/Accounting

Audrey Weiss
Cynthia Anderson
Dennis Lucarrelli
Edward Kolegar

Source Sampling

Frank Hezoucky
John Krisak
Mark Gierke
Greg Sinkovich
Steve Norris
John Zampino
Thomas Johnson

Industrial Hygiene

William C. Nixon Jr.
Robert Hovan
Thomas J. Monito
Roland Vogg

Tank Mgmt. Services

Thomas J. Monito
Charles O. Gibson

Regulatory Compliance

Thomas J. Monito
Roland Vogg
William C. Nixon Jr.
Charles O. Gibson

Laboratory Services

William C. Nixon Jr.
Robert Hovan



**Envisage
Environmental
Incorporated**

P.O. Box 152 Richfield, Ohio 44286
Phone (216) 526-0990

ENVISAGE ENVIRONMENTAL INCORPORATED
LIST OF SIGNIFICANT PROJECTS

Reference Method 5 Development for USEPA in
association with Monsanto Inc.

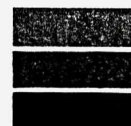
Emission Evaluations for Government Installations at:

Loring Air Force Base, Maine
Wright-Patterson AFB, Ohio
Rickenbacker ANGB, Ohio
Holston Army Ammunitions Plant, Tennessee
General Services Administration, Cleveland, Ohio

Contracts utilizing Envisage services of:

Air Source Evaluations
Water Source Monitoring/Analysis
Hazardous Waste Management
Environmental Assessments/Audits
Solid Waste Disposal Consultation
Industrial Hygiene
Underground Tank Test Management
Product Testing/Quality Control
Infrared Thermography

Cleveland Electric Illuminating Company (CEI)
Ohio Edison Company
Aluminum Company of America
UCAR Carbon Products Company
BP Oil Company
TRW
General Electric Corporation
GenCorp
Avery-Fasson
Kennedy Van Saun
Martin Marietta
Marathon Oil
Stone Container Corporation
Clow Water Systems
Goodyear Tire & Rubber
LTV Steel Corporation
Republic Engineered Steel
Packaging Corporation of America
PPG Industries
Elkem Metals
Detrix Chemicals
RMI Extrusions Facility
RMI Sodium Facility
RMI Titanium Facility



**Envisage
Environmental
Incorporated**

P.O. Box 152 Richfield, Ohio 44286
Phone (216) 526-0990

RESUME

Robert S. Anderson
President
Envisage Environmental Inc.
1976 to present

Education

Cleveland State University
Bachelor of Science
Biological Sciences

USEPA Course 450 - Source Sampling
USEPA Course 413 - Control of
Particulate Emissions

USEPA Course 474 - Continuous Emission
Monitoring

USEPA Course - Air Pollution Equipment
and Design

USEPA Course - Continuous Instrumentation

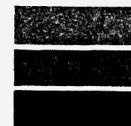
USEPA Certified Smoke Reader

Previous Experience

USEPA Source Sampling Supervisor
Ambient Air Monitoring Supervisor
Quality Control Supervisor
Air Pollution Meteorologist

Current Memberships

Air & Waste Management Assn.
Cleveland Engineering Society
Water Pollution Control Assn.
National Asbestos Council (NAC)
American Industrial Hygiene Assn. (AIHA)
- Local and National Chapter



**Envisage
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P.O. Box 152 - Richfield, Ohio 44286
Phone (216) 526-0990

Current Memberships

National Environmental Health Assn. (NEHA)
National Assn. of Environmental Professionals
Greater Cleveland Growth Assn.
Summit County Safety Council
National Environmental Training Assn. (NETA)
Academy of Certified Hazardous Materials Managers

Certifications

Certified Environmental Professional #2011

University of Cincinnati,
Institute of Environmental Health:

Safe Methods of Asbestos Removal.
Management Planner Training.
Building Inspection Procedures.

Comprehensive Review for Industrial Hygiene Professionals, 1986

Certified Hazardous Materials Manager (CHMM)

Recognized by: Who's Who in
Environmental Training,
1990-91 Edition

Co-Author - Tuning the Green Machine,
Primer for Senate Sub-committee on
Environmental Issues, (currently in use).

Graduate of Quantitative Industrial Hygiene
Seminar Conference, University of Colorado,
AIHA, Ft. Collins, Colorado.

Graduate of Professional Development Seminar
Conference, AIHA/NSC, Orlando, Florida

Past Director - Local Northern Ohio Chapter
Air & Waste Management Assn.
Currently, Vice Chairman, 1991-92



**Envsage
Environmental
Incorporated**

P.O. Box 152 - Richfield, Ohio 44286
Phone (216) 526-0990

RESUME

Thomas J. Monito
Regulatory Compliance Manager
Envisage Environmental Inc.
1988 to present

Education

Pennsylvania State University
Bachelor of Science
Environmental Resource Mngmt

Previous Experience

Pennsylvania Fish Commission
Fisheries Biologist
Research Technician
Water Quality Lab Technician

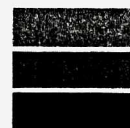
Certification/Training

Past USEPA Certified Smoke Reader

University of Cincinnati,
Institute of Env. Health -
Certified Building Inspection
Procedures for Asbestos.
Airborne Asbestos Monitoring

University of Cincinnati,
Institute of Env. Health -
Certified Management Planner
for Asbestos.

State of Ohio Dept. of Health-
Certified Asbestos Hazard
Evaluation Specialist.
Recertified - October 1991.
Certificate # 31078



**Envisage
Environmental
Incorporated**

P.O. Box 152 Richfield, Ohio 44286
Phone (216) 526-0990

Heath Consultants -
Certified Petro-tite Tank
Testing Systems Operator.
Certified for Data Analysis.

Participant SARA Title III &
Right to Know Seminar &
Workshop, 1989.

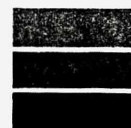
University of Toledo -
Industrial Wastewater
Pretreatment; 1989 -
Water Conservation, Resource
Recovery, Waste Minimization,
Pollution Control.

University of Toledo -
Field Monitoring; 1989 -
Groundwater Protection,
Portable Gas Chromatography,
Additional Instrumentation.

American Society of Civil
Engineers - Cleveland Section
Environmental Liability Associated
with Real Estate Property Transfer
Actions and Corporate Acquisition
Seminar - 1989

Cleveland Engineering Society -
The Permitting, Construction &
Operation of a Hazardous Waste
Incinerator - 1990

Environmental Assessment Assn.
Environmental Inspections for
Real Estate Transactions - 1991



**Envisage
Environmental
Incorporated**

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Phone (216) 526-0990

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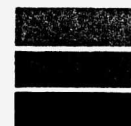
Thomas J. Monito - resume

Certified Environmental Trainer
in Hazardous Materials & Waste
Management Specialties, by the
National Environmental Training
Assn. Board of Examiners, November 1990.

Certified Environmental Inspector
Environmental Assessment Association

Recognized by: Who's Who in
Environmental Training,
1990-91 Edition

Recognized by: Who's Who Environmental
Registry, 1992 Edition



**Envisage
Environmental
Incorporated**

P.O. Box 152 Richfield, Ohio 44286
Phone (216) 526-0990

RESUME

Frank J. Hezoucky
Source Sampling Manager
Envisage Environmental Inc.
1988 to present

Experience

Streetsboro Fire Department
Streetsboro, Ohio
Firefighter,
Emergency Medical Technician

Portage County Hazmat Team
Portage County, Ohio
Hazmat Technician

Education

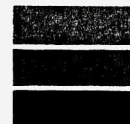
Hocking Technical College
Nelsonville, Ohio
Associate of Applied Science, 1986
Recreation & Wildlife Management
Certified, US Fish & Wildlife Officer

Qualifications/Training

Air Pollution Training Institute
Research Triangle Park, NC
APTI Course #450

"Source Sampling for Particulate Pollutants"
University of Illinois at Chicago
April 1990, Certificate awarded

Air Pollution Training Institute
Research Triangle Park, NC
"APTI #415 - "Control of Gaseous Emissions"
Sandusky, Ohio, June 1990,
Certificate awarded

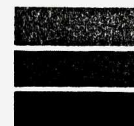


**Envisage
Environmental
Incorporated**

P.O. Box 152 Richfield, Ohio 44286
Phone (216) 526-0990

Frank Hezoucky
Resume - page 2

Air Pollution Training Institute
Research Triangle Park, NC
APTI Course #457
"Advanced Source Sampling Workshop"
at RTP, N. Carolina, December 1990
Certificate awarded



**Envisage
Environmental
Incorporated**

P.O. Box 152 Richfield, Ohio 44286
Phone (216) 526-0990

RESUME

William C. Nixon Jr.
Manager, Industrial Hygiene
Envisage Environmental Inc.
1989 to present

Previous Experience

Harshaw Chemical Company
Technical Service Representative,
Health & Safety of Inorganic
Fluorides

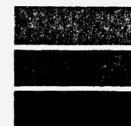
U.S. Dept. of Labor/OSHA
Industrial Hygienist Compliance Officer

Education:

Ohio University, Athens, Ohio
Bachelor of Science, Chemistry

OSHA Institute:
Initial Industrial Hygiene
Compliance Course.
Industrial Noise.
Principles of Industrial Ventilation.
Respiratory Protection.
Safety Hazard Recognition.
Accident Investigation.

University of Cincinnati,
Institute of Environmental
Health, Renewed Annually,
Certified Building Inspection
Procedures for Asbestos.
Certified Management Planner for Asbestos.



**Envisage
Environmental
Incorporated**

P.O. Box 152 Richfield, Ohio 44286
Phone (216) 526-0990

William C. Nixon - Resume
Page 2

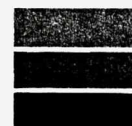
Certifications:

Ohio Department of Health,
Certified Asbestos Hazard
Evaluation Specialist
Re-Certified April, 1991; No. 31527.

University of Cincinnati,
Indoor Air Quality, Certificate
Awarded, 1991, in Florence, Kentucky.

National Environmental Training
Association - Member in good standing.

Recognized by: Who's Who in
Environmental Training,
1990-91 Edition.



**Envisage
Environmental
Incorporated**

P.O. Box 152 - Richfield, Ohio 44286
Phone (216) 526-0990

DRY GAS METER**SPECIFICATION SHEET**

Envisage Environmental #001

MANUFACTURER	Rockwell International
SERIAL NUMBER	CL-250
CAPACITY	250 FT ³ /HR
MAXIMUM W. P.	5
PSI	71 S
IDENTIFICATION NUMBER	DD 2790564

Post-It™ brand fax transmittal memo 7671		# of pages ▶ 1
To <i>Ed Price</i>	From <i>B. HOVAN</i>	
Co. <i>Hukill</i>	Co. <i>ENVISAGE</i>	
Dept.	Phone # <i>526-0990</i>	
Fax # <i>232-9477</i>	Fax # <i>526-8555</i>	

DRY GAS METER CALIBRATION

METHOD 2A

Meter Box Number: Rockwell 2790564

Calibration Date: September 1, 1991

$$Y = \frac{V_t P_b (T_m + 460)}{V_m \left[P_b + \frac{\Delta H}{13.6} \right] (T + 460)}$$

Delta H (ΔH)	in. H2O	0.5	1.0	3.0	5.0	7.0
Pres.Barometer (P_b)	in. Hg	28.96	28.96	28.96	28.96	28.96
Vol.Meter Box (V_m)	cu. ft.	4.775	6.650	11.451	14.603	17.500
Vol.Test Meter (V_t)	cu. ft.	4.549	6.385	11.016	14.002	16.804
Temp. Meter Box (T_m)	$^{\circ}F$	101.8	102.2	107.2	110.5	113.1
	$^{\circ}R$	561.8	562.2	567.2	570.5	573.1
Temp. Test Meter (T_t)	$^{\circ}F$	81.5	81.0	81.0	81.0	81.0
	$^{\circ}R$	541.5	541.0	541.0	541.0	541.0
Time (t)	minutes	10.0	10.0	10.0	10.0	10.0
METER FACTOR (Y)		0.987	0.995	1.001	0.998	0.999
- Average				1.00		

USEPA Reference Method 21

Quality Assurance/Quality Control

Envisage Environmental, Incorporated utilizes a Foxboro Organic Vapor Analyzer model 108 (OVA-108) for its leak detection surveys as described by the Code of Federal Regulations reference method 21.

The analyzer is calibrated at the test site prior to the survey. This procedure is used to account for the temperature and barometric pressure differences between the facility location and Envisage Environmental, Inc. office. These parameters can cause differences with the instrument reading. Calibration of the OVA-108 is performed at the beginning and at the conclusion of the test using two concentrations of methane gas; 100 ppm (parts per million) and 10,000 ppm. The use of two concentrations allows a low range and a high range calibration of the instrument. Envisage Environmental, Inc. maintains gas certification sheets on file for the methane calibration gases.

As stated in USEPA reference method 21, an allowable calibration deviation of ten percent of the calibration gas value is adhered to. Any deviation in the post calibration reading is recorded on the survey field sheet. In the advent of a non compliance calibration, the original survey is disregarded and a additional survey is completed.

**ALPHAGAZ**

DIVISION OF LIQUID AIR CORPORATION

ANALYSIS CERTIFICATION**METHOD OF PREPARATION : GRAVIMETRIC \ PRESSURE TRANSFILLING****METHOD OF ANALYSIS : VARIAN 3400 GC(FID)**

LOT NO. & QTY.	COMP. 1 CH ₄	COMP. 2 AIR	COMP. 3	COMP. 4
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34937	99PPM	BALANCE		
-------	-------	---------	--	--

34865	0.99%	BALANCE		
-------	-------	---------	--	--

REQUESTED BY : ON-SITE INSTRUMENTS**CUSTOMER PURCHASE ORDER NUMBER : 12119****PACKING LIST NUMBER : 39604****CERTIFICATION DATE : APRIL 01, 1992****ANALYSIS BY : Dennis Willes**
Lab Technician

Chesapeake Drive • P.O. Box 149 • Cambridge, MD 21613 • Telephone: (301) 228-6400

Exhibit D-19 Cont.

BATTERY TEST: Battery charge condition indicated on readout meter. Upon activation of momentary contact switch, a meter reading above the indicator line means that there is 4 hours minimum service life remaining (at 22°C).

FILTERS: In-line sintered metal filters will remove particles larger than 10 microns.

OPERATING TEMPERATURE RANGE: 10°C to 40°C.

MINIMUM AMBIENT TEMPERATURE: 15°C for Flame Ignition (coldstart).

ACCURACY: Based on the use of a calibration gas for each range:

Calibration Temp. °C	Operating Temp. °C	Accuracy in Individual Full Scale
20 to 25	20 to 25	± 20%, 1-10,000 ppm
20 to 25	10 to 40	± 20%, 1-10,000 ppm

RELATIVE HUMIDITY: 5% to 95%, Effect on accuracy: 1% of individual full scale.

RECORDER OUTPUT: 0 to 5 volts.

MINIMUM DETECTABLE LIMIT (METHANE): 0.2 ppm

STANDARD ACCESSORIES:

1. Instrument carrying and storage case
2. Hydrogen fuel filling hose assembly
3. Battery charger
4. Earphone
5. Various sampling fixtures - close area sampler, tubular sampler
6. Maintenance tool kit
7. Operators manual (2 each)
8. Padded leather carrying straps

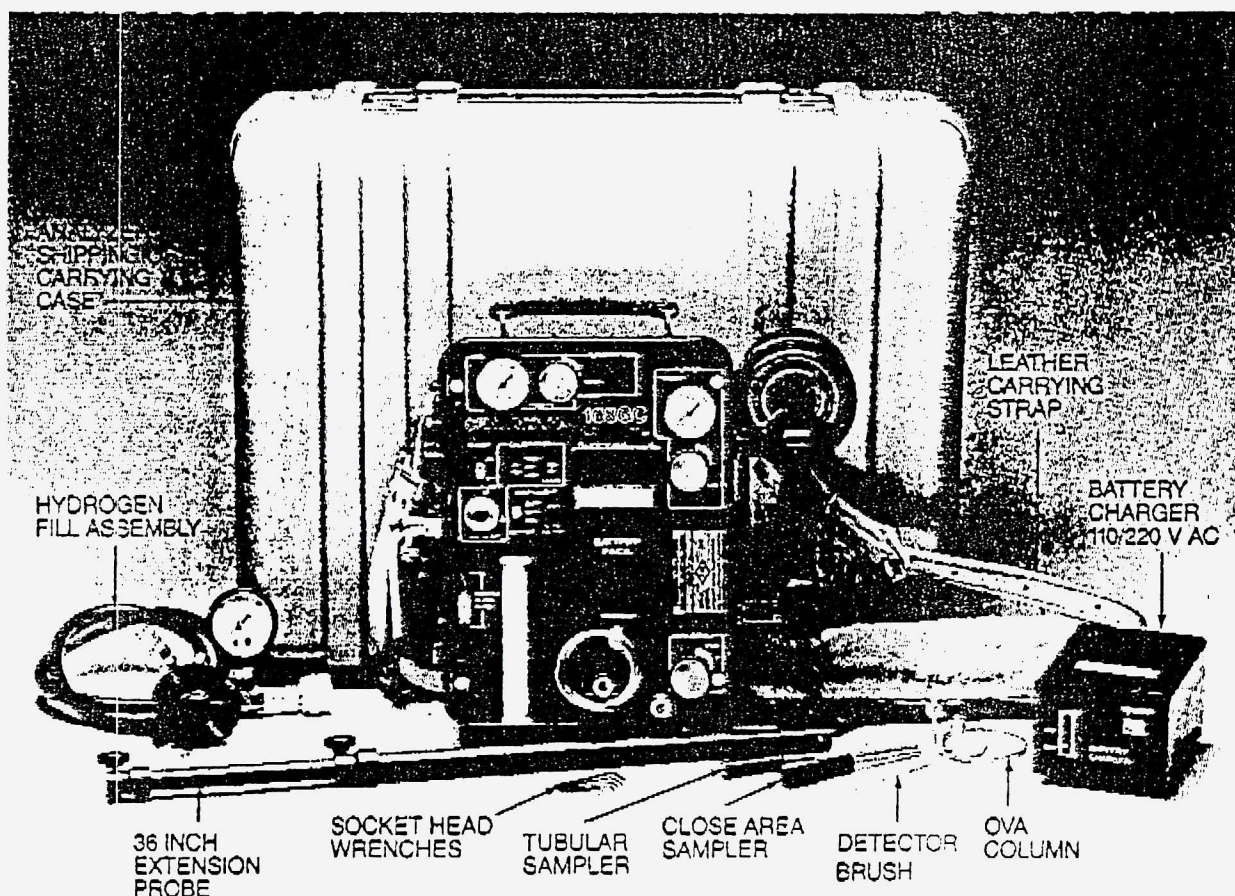


FIGURE 3
OVA-108 ANALYZER COMPONENTS
(Gas Chromatograph Model Shown)

Major Features

The basic instrument consists of two major assemblies, the Probe/Readout Assembly and the Side Pack Assembly (See Figure 2). The recorder is optional on all models, but is normally used with all instruments which incorporate the GC Option. The output meter and alarm level adjustments are incorporated in the Probe/Readout Assembly.

The Side Pack Assembly contains the remaining operating controls and indicators, electronic circuitry, detector chamber, hydrogen fuel supply, and electrical power supply.

Other major features are: logarithmic scale readout, approximately two second response time and portable operating time of 8 hours for fuel supply and battery pack. A battery test feature allows charge condition to be read on the meter. Hydrogen flame-out is signified by an audible alarm plus a visual indication on the meter. The instrument contains a frequency modulated detection alarm which can be preset to sound at a desired concentration level. The frequency of the detection alarm varies as a function of detected level giving an audible indication of organic vapor concentration. An earphone is provided to allow the operator to hear the alarm in noisy areas or to avoid workers.

During use, the Side Pack Assembly can be carried by the operator on either his left or right side or as a back pack. The Probe/Readout Assembly can be detached from the Side Pack Assembly and disassembled for transport and storage.

Standard Accessories

A variety of sampling probes can be used. In addition, small diameter tubing can be used for remote sampling or electrically insulated flexible extensions can be used for places that are difficult to reach.

Telescoping Probe

Probe length can be increased or decreased over a 22 to 30 inch range to suit the individual user. A knurled locking nut is used to lock the probe at the desired length. The probe is attached to the Readout Assembly. When appropriate, the probe is replaced with a Close Area Sampler, which is supplied as a standard accessory.

Sampling Accessories

<u>Part Number</u>	<u>Description</u>
510125-1	Close area sampler - Connects directly to the readout assembly.
CR009LX	Telescoping probe - Adjustable length - accommodates the probe listed below.
510126-1	Tubular area sampler Used with the telescoping probe.

Particulate Filters

The primary filter of porous or sintered stainless steel is located behind the sample inlet connector (see Side Pack Assembly drawing). In addition, a replaceable porous metal filter is installed in the "close area" sampler.

Carrying Case

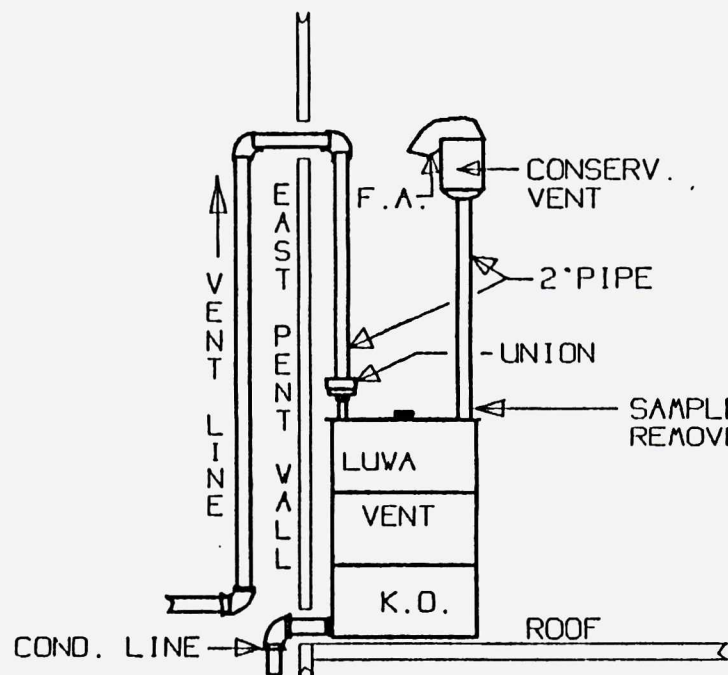
An instrument carrying case is provided to transport, ship and store the disassembled Probe/Readout Assembly, the Side Pack Assembly and other equipment.

Specifications

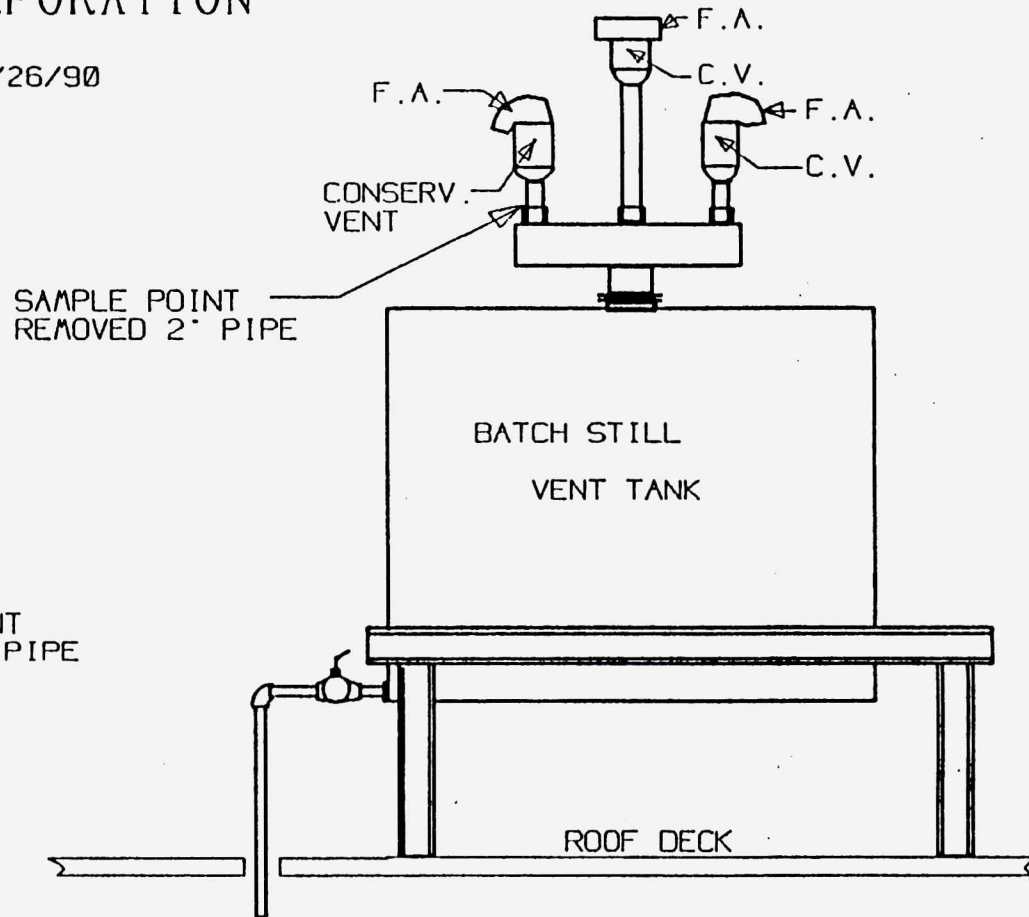
READOUT: 1-10,000 ppm logarth.
 SAMPLE FLOW RATE: 1 1/2 to 2 1/2 litre per minute at 22°C, 760 mm, using close area sampler.
 RESPONSE TIME: Approximately 2 seconds for 90% of final reading.
 PRIMARY ELECTRICAL POWER: 12 volt (nominal) battery pack.
 FUEL SUPPLY: Approximately 75 mL volume tank of pure hydrogen, maximum pressure 2400 psig, fillable in case.
 HYDROGEN FLOW RATE: Factory set 12.5 0.5 mL/min (minus GC option) 11.0 0.5 mL/min (GC models).
 PORTABLE OPERATING TIME: Minimum 8 hours with battery fully charged, hydrogen pressure at 1800 psig.
 PHYSICAL DIMENSIONS: 9" x 12" x 5" (229 mm x 305 mm x 127 mm) Side-pack only.
 WEIGHT: 12 pounds (5.5 kg) (sidepack and hand-held probe assembly).
 DETECTION ALARM: Audible alarm plus meter indication. User preset to desired level.
 FLAME-OUT ALARM: Audible alarm plus meter indication (needle drops off scale in negative direction).

HUKILL CHEMICAL CORPORATION

\AIRPERM\PROCVENT Rev. 12/26/90



LUWAS' VENT



BATCH STILL VENT

TEST LOCATIONS FOR COMPLIANCE WITH ORGANIC AIR EMISSION REGS

Figure D-13

Location of equipment subject to Subpart BB for leak detection monitoring.

Plot Plan Location numbers correspond to the Legend numbers located on the "FACILITY OPERATING AREA PLOT PLAN", Figure D-12.

"H.W." refers to Hazardous Waste. "Cam-lock ftg." is a type of quick-coupled connector adjacent to the valve.

PLOT PLAN LOCATION	EQUIPMENT I. D. NUMBER	EQUIPMENT DESCRIPTION
1	None	Batch Distillation Unit Area Equipment in contact with H.W. for this unit is in the Reboiler Area See Location 7.
2	PFLN430 PBLN430 UBLN430A UBLN430B UBLN430C UFV6000 UFV4000 UFEAST UFWEST UFV110M UFV210M	Luwa Thin Film Evaporator Unit No. LN430 Area Positive displacement feed pump with packing seal. Positive displacement discharge pump with packing seal. 2 inch ball valve on line to U-117 Bottoms Tank 2 inch ball valve on line to U-110M tank. 2 inch ball valve & cam-lock ftg. on line to system drain drum. 2 inch ball valve & cam-lock ftg. on pipe rack in line from U-6000 tank. 2 inch ball valve & cam-lock ftg. on pipe rack in line from U-4000 tank. 2 inch ball valve & cam-lock ftg. on pipe rack in line from East Feed tank. 2 inch ball valve & cam-lock ftg. on pipe rack in line from West Feed tank. 2 inch ball valve & cam-lock ftg. on pipe rack in line from U-110M tank. 2 inch ball valve & cam-lock ftg. on pipe rack in line from U-210M tank.
3	PFLN500 UFLN500 UBW PBLN500 UBLN500A UBLN500B UBLN500C	Luwa Thin Film Evaporator Unit No. LN500 Area Positive displacement feed pump with packing seal. 2 inch ball valve & cam-lock fitting on pump discharge line. Luwa systems' backwash solution circulation line 2 " ball valve. Positive displacement discharge pump with packing seal. 2 inch ball valve on line to U-117 Bottoms Tank 2 inch ball valve on line to U-110M tank. 2 inch ball valve & cam-lock ftg. on line to system drain drum.
4	UDU114 UDU214 UDU314	East Pad H.W. Storage Tank Dike Area 2 inch ball valve & cam-lock ftg. from U-114 H.W. storage tank at edge of dike. 2 inch ball valve & cam-lock ftg. from U-214 H.W. storage tank at edge of dike. 2 inch ball valve & cam-lock ftg. from U-314 H.W. storage tank at edge of dike.

4 (Cont'd)	UDU414	2 inch ball valve & cam-lock ftg. from U-414 H.W. storage tank at edge of dike.
	UDU515	2 inch ball valve & cam-lock ftg. from U-514 H.W. storage tank at edge of dike.
	UDU614	2 inch ball valve & cam-lock ftg. from U-614 H.W. storage tank at edge of dike.
	UDU120	2 inch ball valve & cam-lock ftg. from U-120 H.W. storage tank at edge of dike.
	UDU4000	2 inch ball valve & cam-lock ftg. from U-4000 H.W. storage tank at edge of dike.
5		H.W. Feed & Bottoms Storage Tanks Area
	PWFEED	West 6,000 gallon Feed Tank fill/discharge valve. 2 inch ball valve & cam-lock ftg.
	PEFEED	East 6,000 gallon Feed Tank fill/discharge valve. 2 inch ball valve & cam-lock ftg.
	PTRANS	East Pad H.W. Portable positive displacement pump with packing seals.
	CTTRANS	East Pad positive displacement pump with packing seals & Cam-Lock.
	PU117	U-117 Bottoms Tank positive displacement circulating pump with packing.
	UDU117	U-117 Bottoms Tank discharge line 3 inch ball valve.
	CDU117	Cam-Lock fitting on U-117 Bottoms Tank discharge line.
6		H.W. Fuels Blend Tank Dike Area
	UDU6000	2 inch ball valve & cam-lock ftg. from U-6000 H.W Fuels tank at north end of dike.
	UDU110M	3 inch ball valve & cam-lock ftg. from U-110M H.W Fuels tank at north end of dike.
	UDU210M	3 inch ball valve & cam-lock ftg. from U-210M H.W Fuels tank at north end of dike.
	UDU175	2 " ball valve & cam-lock ftg. from U-175 H.W Fuels tank at north end of dike.
	UTRANS	3 " ball valve & cam-lock ftg. in the transport loading line at north end of dike.
7		Batch Distillation Reboiler Area
	USMPR	1/2 inch sample valve at north end of Reboiler.
	URETR	4 inch gate valve in return line from distillation column to Reboiler.
	UFILLR	2 inch gate valve in Reboiler charging line at Reboiler.
	MHR	Man hole cover on top of Reboiler.
8		H.W. Drum Processing Area
	UFU110M1	3 inch ball valve on line to U-110M H.W. Fuels storage tank.
	UFU110M2	3 inch flange on line to U-110M H.W. Fuels storage tank.
	UFU110M3	3 inch gate valve on line to U-110M H.W. Fuels storage tank.
	UFU110M4	3 inch gate valve & cam-lock ftg. on line to U-110M H.W. Fuels storage tank.
	UFU110M	3 inch ball valve & cam-lock ftg. on line to U-110M H.W. Fuels storage tank.
	UFU110M5	3 inch ball valve & cam-lock ftg. on line to U-110M H.W. Fuels storage tank.
9		Pump Room
	UFLUWAS	2 inch ball valve & cam-lock ftg. in feed line to Processing Area to feed Luwas.
	UFBSTILL	2 inch ball valve & cam-lock ftg. in feed line to the Batch Still Reboiler.

APPENDIX A

INSPECTION LOG SHEETS

INSPECTION LOG SHEET - A
Operating, Structural Equip & Tank Storage Area

Key: Status
✓ - present
X - not present

DATE: _____ MILITARY TIME: _____

INSPECTED BY: _____

COMMENTS : _____

Condition
✓ - operable
M - in need of maint.
operable
X - un-operable

-See back for details-

ITEM	STATUS	CONDITION	OBSERVATIONS	CORRECTIVE ACTION TAKEN	CORRECTIVE ACTION	
					DATE	SIGNED
Sumps						
Pump						
Ramp						
Dike						
Foundation						
Holding Tanks						
Piping						
Supports						
Spent Acid Tank Sump						
Pump						
Dike						
Foundation						
Tank						
Piping						
Supports						
Spray Booth						

Area/Equipment	Items Inspected	Conditions
Operating and Structural equipment	Sump areas	Erosion, uneven settlement, cracks and spalling in concrete, wet spots
	Pump	Power, clogging
	Ramps	Erosion, uneven settlement, cracks and spalling in concrete
	Dikes	Cracks, deterioration
	Bases or foundation	Erosion; uneven settlement; cracks and spalling in concrete pads, base rings and piers; deterioration of water seal between tank bottom and foundation, wet spots.

Area/Equipment	Items Inspected	Conditions
Tank Storage Area	Holding tanks	Corrosion, discoloration, cracks, buckles, and bulges
	Piping to holding tanks	Loss of metal thickness, leaks, corrosion or deterioration
	Tank structural supports	Concrete deterioration and corrosion of pipe supports
	Paint Spray Booth	Sprinkler Head, filter condition, air flow

INSPECTION LOG SHEET - B
Operating, Structural Equip & Tank Storage Area

Key: Status
✓ - present
X - not present

DATE: _____ MILITARY TIME: _____

INSPECTED BY: _____

COMMENTS : _____

Condition
✓ - operable
M - in need of maint.
operable
X - un-operable

-See back for details-

ITEM	STATUS	CONDITION	OBSERVATIONS	CORRECTIVE ACTION TAKEN	CORRECTIVE ACTION	
					DATE	SIGNED
Base						
Sump						
Dike						
Pumps						
Debris						
Pallets						
Waste Segregation						
Containers:						
Stacking						
Sealing						
Labeling						
Condition						
Ramps						
Warning Signs						
Shar Mixer						
Catwalk						
Hydraulic Systems						
Raw Materials						
Leaks						
Skills						

Area/Equipment	Items Inspected	Conditions
Container Storage Area	Container placement and stacking	Aisle space, height of stack
	Sealing of containers	Open lids
	Labeling of containers	Improper identification, data missing
	Containers	Corrosion, leakage, structural defects
	Ramps	Cracks, spalling, uneven settlement, erosion
	Warning signs	Damaged
	Base or foundation	Cracks, spalling, uneven settlement, erosion, wet spots
	Sump area	Cracks, spalling, uneven settlement, erosion, wet spots
	Dikes	Cracks, deterioration
	Pumps (automatic)	Setting adjustment, power, clogging, leakage
	Debris and refuse	Clog sump pump, aesthetics, possible reaction with leaks
	Pallets	Damaged (e.g., broken wood, warping, nails missing)
	Segregation of incompatible wastes	Storage of incompatible wastes in area
	Shar Mixer	hydraulic system, is in operation condition
	Hydraulic System	Is in operating condition
	Raw Materials	Stacked Properly/No spilled material
	Leaks	No leaking of Hazardous Waste
	Spills	No spills of Hazardous Waste
	Containers	Containers are covered and in good condition

HUKILL CHEMICAL CORPORATION INSPECTION SCHEDULE

AREA / EQUIPMENT	ITEM INSPECTED	CONDITION	FREQUENCY
Operating and Structural Equipment	Sump Areas	Erosion, uneven settlement, cracks spalling in concrete, wet spots	Weekly
	Pump	Power, clogging, leaking, excessive noise, frayed electrical cord	Weekly
	Ramps	Erosion, uneven settlement, cracks spalling in concrete	Weekly
	Dikes	Deterioration, cracks	Daily
	Bases or foundations	Erosion, uneven settlement, cracks and spalling in concrete pads, base rings and piers, deterioration of water seal between tank bottom and foundation wet spots	
Tank Storage Areas	Holding tanks	Corrosion, discoloration, cracks, buckles, bulges, small leaking	Daily
	Piping	Loss of Metal thickness, leaks, corrosion or deterioration, bends or kinks	Daily
	Valves and fittings	Leaking, leaking packing, caps on fittings, fittings out of round, tabs are on quick connect caps	Daily
	Tank Structural Supports	Concrete deteriora, cracking corrosion of pipe supports	Daily
Container Storage Areas	Base or Foundation	Cracks, spalling, uneven settlement erosion, wet spots	Weekly
	Sump area	Cracks, spalling, uneven settlement erosion, wet spots	Weekly
	Dikes	Cracks, deterioration	Weekly
	Debris and refuse	Clogged catch basin grating, aesthetics, possible reaction with leaks	Daily
	Pallets	Damaged (broken wood, warping or nails missing)	Weekly

HUKILL CHEMICAL CORPORATION INSPECTION SCHEDULE

AREA / EQUIPMENT	ITEM INSPECTED	CONDITION	FREQUENCY
Container Storage Area	Segregation of incompatible wastes	Storage of incompatible wastes in area	Weekly
Continued	Container placement	Aisle space, stack height	Weekly
	Sealing of containers	Open lids, leaks	Weekly
	Labeling of containers	Improper identification, date missing	Weekly
	Containers	Corrosion, leakage structural defects	Weekly
	Ramps	Cracks, spalling, uneven settlement, erosion	Weekly
	Warning Signs	Damaged, illegible	Weekly
Tanker Load/Unload Area	Dock surface	Spills not cleaned	Daily
	Hoses	Area clear of hoses	Daily
	Tools	Area clear of tools	Daily
	Pumps	Not leaking, electric cords	Daily
	Absorbent	Sufficient amount located nearby for spill containment	Daily
Security Devices	Fence	Intact	Weekly
	Gates	Won't open and close	Daily
	Night Lights	Burned out	Daily
	Alarm	Check circuit test	Daily
Monitoring	Tank Level Gauges	Dirty, not floating, freeze	Daily
	High level alarm	Check sensitivity, annunciator, alarm.	Daily
	Water table level	Flooding	Daily

